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# Research Brief

## Using Marijuana May Not Raise the Risk of Using Harder Drugs

Marijuana is widely regarded as a "gateway" drug, that is, one whose use results in an increased likelihood of using more serious drugs such as cocaine and heroin. This gateway effect is one of the principal reasons cited in defense of laws prohibiting the use or possession of marijuana. A recent analysis by RAND's Drug Policy Research Center (DPRC) suggests that data typically used to support a marijuana gateway effect can be explained as well by a different theory. The new research, by Andrew Morral, associate director of RAND Public Safety and Justice, Daniel McCaffrey, and Susan Paddock, has implications for U.S. marijuana policy. However, decisions about relaxing U.S. marijuana laws must necessarily take into account many other factors in addition to whether or not marijuana is a gateway drug.

### *Support for the Gateway Effect*

Although marijuana has never been shown to have a gateway effect, three drug initiation facts support the notion that marijuana use raises the risk of hard-drug use:

- Marijuana users are many times more likely than nonusers to progress to hard-drug use.
- Almost all who have used both marijuana and hard drugs used marijuana first.
- The greater the frequency of marijuana use, the greater the likelihood of using hard drugs later.

This evidence would appear to make a strong case for a gateway effect. However, another explanation has been suggested: Those who use drugs may have an underlying propensity to do so that is not specific to any one drug. There is some support for such a "common-factor" model in studies of genetic, familial, and environmental factors influencing drug use. The presence of a common propensity could explain why people who use one drug are so much more likely to use another than are people who do not use the first drug. It has also been suggested that marijuana use precedes hard-drug use simply because opportunities to use marijuana come earlier in life than opportunities to use hard drugs. The DPRC analysis offers the first quantitative evidence that these observations can, without resort to a gateway effect, explain the strong observed associations between marijuana and hard-drug initiation.

### *New Support for Other Explanations*

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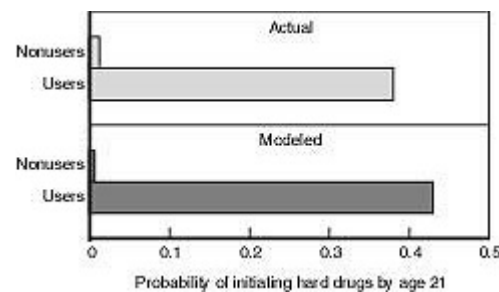
The DPRC research team examined the drug use patterns reported by more than 58,000 U.S. residents between the ages of 12 and 25 who participated in the National Household Surveys on Drug Abuse (NHSDA) conducted between 1982 and 1994.<sup>[1]</sup> Using a statistical model, the researchers tested whether the observed patterns of drug use initiation might be expected if drug initiation risks were determined exclusively by

- when youths had a first opportunity to use each drug
- individuals' drug use propensity, which was assumed to be normally distributed<sup>[2]</sup> in the population
- chance (or random) factors.

To put it another way, the researchers addressed the question: Could the drug initiation facts listed in the first section of this brief be explained without recourse to a marijuana gateway effect?

The research team found that these associations could be explained without any gateway effects:

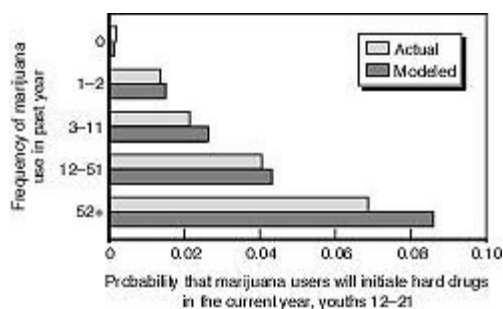
- The statistical model could explain the increased risk of hard-drug initiation experienced by marijuana users. Indeed, the model predicted that marijuana users would be at even greater risk of drug use progression than the actual NHSDA data show (see Figure 1).
- The model predicted that only a fraction of hard-drug users would not have tried marijuana first. Whereas in the NHSDA data 1.6 percent of adolescents tried hard drugs before marijuana, the model predicted an even stronger sequencing of initiation, with just 1.1 percent trying hard drugs first.
- The modeled relationship between marijuana use frequency and hard-drug initiation could closely match the actual relationship (see Figure 2).



**Figure 1—Probabilities of Initiating Hard Drugs, Marijuana Users and Nonusers**

The new DPRC research thus demonstrates that the phenomena supporting claims that marijuana is a gateway drug also support the alternative explanation: that it is not marijuana use but individuals' opportunities and unique propensities to use drugs that determine their risk of initiating hard drugs. The research does not disprove the gateway theory; it merely shows that another explanation is plausible.

Some might argue that as long as the gateway theory remains a possible explanation, policymakers should play it safe and retain current strictures against marijuana use and possession. That attitude might be a sound one if current marijuana policies were free of costs and harms. But prohibition policies are not cost-free, and their harms are significant: The more than 700,000 marijuana arrests per year in the United States burden individuals, families, neighborhoods, and society as a whole.



**Figure 2—Probabilities of Hard-Drug Initiation, Given Marijuana Use Frequency in the Preceding Year**

Marijuana policies should weigh these harms of prohibition against the harms of increased marijuana availability and use, harms that could include adverse effects on the health, development, education, and cognitive functioning of marijuana users. However, the harms of marijuana use can no longer be viewed as necessarily including an expansion of hard-drug use and its associated harms. This shift in perspective ought to change the overall balance between the harms and benefits of different marijuana policies. Whether it is sufficient to change it decisively is something that the new DPRC research cannot aid in resolving.

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[1] In subsequent years, respondents have not been asked about their first opportunity to use various drugs.

[2] That is, some people have a high or low propensity, but most people have a propensity near the middle of the range.

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RAND research briefs summarize research that has been more fully documented elsewhere. This research brief describes work done in [RAND's Drug Policy Research Center](#), a joint endeavor of [RAND Public Safety and Justice](#) and [RAND Health](#). The research is documented in "Reassessing the Marijuana Gateway Effect" by Andrew R. Morral, Daniel F. McCaffrey, and Susan M. Paddock, *Addiction* 97:1493-1504, 2002.

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